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“..... per litora spargite muscum,
Naiades, et circum vitreos considite fontes:
Pollice virgineo teneros hic carpite flores:
Floribus et pictum, divæ, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchyliis succo.”

N. Parthenii Giannettasii Ecl.

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- I.—*On the Distribution of Birds in North Russia.*—
II. *Longitudinal Distribution of Species North of 64° 30' N. lat., or the NORTHERN DIVISION.* By J. A. HARVIE BROWN, F.Z.S., Member of the British Ornithologists' Union.

INTRODUCTORY REMARKS.

WHILE I was preparing the following paper it was suggested to me that I should include the northern portions of Scandinavia and Finland, as well as Iceland, Spitzbergen, and Novaja Zemlja, as then the distribution of species in the whole of the portions of the Western Palæarctic region north of 64° 30' N. lat., as far as recorded, would be shown in one tabular view.

I have given the matter due consideration; and although I have at hand most of the materials necessary for such a comparison, I have come to the conclusion that the more satisfactory way will be first to complete the tabulation of records in Russia, as far south as 60° or 59° N. lat., and *then* to compare the faunas of the countries north of the Baltic and north of the parallel of 60° N., and to show, under each, the northern and southern, as well as the western and eastern, distribution.

It was, again, suggested to me that I should confine my
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present tabulation to the districts which have been pretty fully worked; but upon consideration of this I concluded that, as my paper is intended not only to show what has been done ornithologically in North Russia, but also what remains to be done, it would serve my purpose better to include the comparatively unworked districts also, with certain reservations. One of these reservations is, the withholding of the recorded faunal value of the species, in many instances, beyond the record of first value (*viz.* simple recorded presence: *vide* explanation of symbols, further on), as, for instance, in the *N.W. District*. By doing this the continuity of the Table will not be affected, while at the same time all past work, with the exception of these reservations, will be placed, once for all, within easy reach. Further elucidation of the fauna can thus at any time in future be worked into the present Tables without altering their form or permitting them to get out of date.

With regard to the northerly distribution of insectivorous species in Russia and in Norway, it will only be necessary here to institute the general comparison that they will be found, with not very many exceptions, to reach localities in Russia situated from four to six degrees of latitude south of that which they reach in Norway.

In the 'Ann. & Mag. of Nat. Hist.' for April 1877, I have already treated of the latitudinal distribution of the birds of North-east Russia. Since this part of my paper was sent to press, I have been able to consult most of the authors who have treated of the birds north of $64^{\circ} 30'$ N. lat. and to compare their records. As already mentioned, however (*loc. cit.* p. 279), these materials are still insufficient to admit of an accurate knowledge of the minutiae of latitudinal distribution, owing to the large extent of unexplored country. The present part of my paper therefore does not profess to exhaust the subject or even to approach completeness, but is merely a stepping-stone towards fuller records. In other words, I have thought it advisable to collect our already acquired knowledge of North-Russian species, and place it in a more accessible form.

To enable me to do this easily, and on a uniform plan, I have, in the first place, divided North Russia into two great divisions, which I propose to call the "NORTHERN" and the "SOUTHERN DIVISIONS." The former, with which we have more particularly to do at present, is included between the parallels of $64^{\circ} 30'$ N. lat. and 70° N. lat. The Southern (which I propose to make the subject of a later part of this paper) is that portion south of $64^{\circ} 30'$ N. lat., and between

that and 60° N. lat., or about the latitude of St. Petersburg, but also including the whole of the Government of Vologda.

Further, for purposes of comparison, I have divided the "NORTHERN DIVISION" into three Districts, which I name and define as follows:—

1st. "*The N.W. District of the Northern Division.*"—Included between 30° and 40° E. long. (and north of 64° 30' N. lat., which latter parallel passes through the Gulf of Onega). This includes the whole of the Kola peninsula, and all west of the White Sea up to the frontier of Russian Finland. By reference to the list of authors given further on, it will be seen that our materials for this district are far from complete (*vide* also *infra*, page 4).

2nd. "*The North-Central District of the Northern Division.*"—Included between 40° and 50° E. long. (and north of 64° 30' N. lat., but including the district immediately around Cholmogory). This includes the delta of the river Dvina and the country east of the White Sea as far as the watershed of the Pëza and Zylma rivers (or the plateau of the Timanskai Mountains), also the island of Kolguef in the Arctic Sea. Our materials for this portion are fuller than for either of the other two districts.

3rd. "*The N.E. District of the Northern Division.*"—Included between 50° and 65° E. long. (and N. of the parallel of 64° 30' N. lat.). This includes the country from the headwaters of the Zylma (or plateau of the Timanskai Mountains) eastward, the valley of the Lower Petchora river to the Ural Mountains; and north-eastward to the Kara Sea and the range of the Paechoi Mountains, and including the Island of Waigats and adjoining seas*.

In the second place, I have under each district entered the records of the authors who have treated more or less of the birds of the NORTHERN DIVISION; and I now proceed to give a list of these, with the titles of their papers, in chronological order. The capital letters affixed to the notice of each indicate the extent of each author's field-work, or the districts in connexion with which he has written. I defer a criticism of the doubtful records until towards the close of the paper, merely indicating here the number of species recorded or added to the fauna by each author. The numbers 1 to 17, preceding the following notices, are used for reference in the Table further on.

* I have similarly divided the southern division into three districts, but I need not at present name or define them.

NORTHERN DIVISION.

LIST OF AUTHORS, &c.

1.

1840. MIDDENDORFF, Von. "Bericht über die orn. Ergebnisse der naturhist. Reise in Lappland während des Sommers 1840." (Beiträge zur Kenntniss des Russ. Reiches, Bd. viii. pp. 187-258.) N.W.

This is a most important paper. A set of useful Tables gives the faunal value of 75 species in Russian Lappland. In my Tables further on, however, I have preferred for the present entering only the simple record (thus, |), awaiting further elucidation of the fauna of the N.W. District. I would here refer also to Von Middendorff's larger work, 'Sibirische Reise,' Band iv. 4to, pp. 785-1094, for much interesting matter connected with Northern Palæartic species. (*Cf.* 'Ibis,' 1870, p. 274.)

2.

1842. BYSTROV-BRANDT. "List of Skins of Mammals and Birds sent by Herr Bystrov of Mezén to Zool. Mus. of Academy." (Bull. de la Soc. de l'Académie de St. Pétersbourg, vol. x. p. 350.) N.C.

A list of 62 species of birds is given, skins of which had been forwarded from Mezén.

3.

1844. BLASIUS, J. H. 'Reise in europ. Russland.' Braunschweig, 1844.

This I have not been able to consult. It refers, however, I believe, more directly to the southern division.

4.

1850. LILLJEBORG, W. "Bidrag till Norra Rysslands och Norrignes Fauna, samlade under en vetenskapelig resa i dessa län 1848." (K. V. Ak. Handl. 1850, ii.) N.W., N.C. (and S.W.).
1852. IDEM. "Beiträge zur Ornith. des nördlichen Russlands und Norwegen." ('Naumannia,' 1852, part ii.) Translation of the last into German.

This is an important contribution. Records of 125 species are given. Of these, 36 occur in the N.W., 73 in the N.C. (and 78 are recorded from the S.W.).

5.

1856. HOFFMAN-BRANDT. "Bemerkungen über die Wirbelthiere des nördlichen europäischen Russlands, besonders des nördlichen Urals. Ein Beitrag zur näheren zoologisch-geographischen Kennt-

niss Nord-Ost-Europa's.—Vögel :” by J. F. Brandt, p. 61, contained in ‘Das nördliche Ural und das Küsten-Gebirge Paechoi,’ by Hoffman (vol. ii. p. 61). St. Petersburg, 1856*.

Seventy species are mentioned as occurring in the districts visited by the Ural Expedition ; but of these, nineteen only are recorded as occurring north of 64° 30' N. lat.

6.

1856. HOFFMANNSEGG, GRAF. “*Limosa cinerea* im ihren Sommerverhalten.” (Allg. deutsche Naturhistor. Zeitung im Auftrage Gesellsch. Isis in Dresden, neue Folge, Band ii. p. 238.) N.C.

7.

1856. HENCKE. “Kurzer Bericht über eine oologische Excursion bei Archangel.” (Ibid. p. 236.) N.C.

Graf Hoffmannsegg and Herr Hencke also visited the Petchora ; but the above short papers are all the published records of their discoveries I have been able to find.

8.

1871. MEVES. “Orn. iaktt. till större delen samlade under en resa i Nordvestra Ryssland; sommaren 1869.” (Öfvers. af Kongl. Vetensk. Akad. Förhandl. 1871, part 6, Stockholm.) N.C. (and S.).

IDEM. Translation of the above into English by M. Hjaltalin ; in MS.

A most valuable paper. Dr. Meves records in all 201 species from N.C. and S.W. districts. Of these, 131 are from the N.C., and 162 are recorded as occurring in the S.W.

9.

1872. TH. V. HEUGLIN. “Notes on the Birds of Novaya Zemlia and Waigats Island.” (‘Ibis,’ 1872, p. 60†.)

Many references are here made to the birds of Waigats

* It may be as well that I should here mention that much also has been due to the exertions of earlier travellers in Northern Russia, amongst whom I would instance Herr v. Baer, who has written upon the animal life of Novaja Zemlja, and also the traveller Schrenck, who passed through Siberia in Europe, from west to east, and travelled from Kolva on the Ussa into the Northern Ural. A fuller reference to the work of these and other naturalists and travellers will be found in the introductory portion of the above paper, into which, however, Prof. Brandt has already worked the principal results, so that they call for no further notice in this place.

† Also “Nachtrag zur Orn. von Novaja Zemlja und der Waigatsch-Insel” (‘Journal für Orn.’ 1872, p. 464) and “Nachrichten über Novaya Zemlya. Auszug aus einem Schreiben an Hrn. v. Middendorff” (Bull. Ac. Imp. St. Pétersb. xvi. p. 566, Mém. Biolog. viii. pp. 220–225).

Island and the mainland near Yugorsky Strait, also of Wai-gats Strait; V. Heuglin mentions 38 species as occurring at these localities.

10.

1873. GOEBEL, H. "Beiträge zur Kenntniss der Ornithologie des Archangel'schen Gouvernements." (*Journal für Ornithologie*, 1873, Jan., no. 121, pp. 406-422.) N.C.

167 species are recorded as occurring in the N.E. district; but, as will be shown further on, a good many of these have more or less doubt attaching to them*.

11.

1873. PALMÉN, Prof. J. A. *Finlands Foglar, hufvudsakligen till deras drägter beskrifna af Magnus von Wright, &c.* Vol. ii. Helsingfors, 1873. N.W., N.C. (and S.W.)

In this volume all notices have been carefully collected by Prof. Palmén as to the distribution of the birds (*Gallinæ*, *Grallæ*, and *Anseres*) of Finland, as far to the eastward as the river Wig and Onega Sea, in the S.W. district, and including the whole of the peninsula of Kola, in the N.W. District; and to it I am greatly indebted for data for my N.W. District, as Prof. Palmén quotes all previous writers, including Middendorff and Lilljeborg, and other reports from naturalists who have visited the country—Sahlberg and Malmberg and others. By the courtesy of Prof. Palmén I am also made aware that Lieut. H. Sandeberg†, a Swedish naturalist, has last year (1876) done very good ornithological work in Kola, and that he also collected in the neighbourhood of Archangel. The results, however, are not yet made public.

Amongst the families treated of in the above work‡ by Prof. Palmén, there are records of 90 species altogether which range into Russia. Of these, 58 are recorded from the N.W.,

* The following paper by Herr Goebel refers mostly to the Southern Division, and will come to be quoted when I treat of the latter; I have not considered it necessary to refer directly to it in the present connexion:—1871, Goebel, H., "Eine Reise von Petersburg nach Archangelsk über Tver, Jaroslav, Vologda und Ustjug vom 8. May bis 1. Juni 1864" (*Journal für Ornithologie*, pp. 20-27, 1871).

† Since the above was sent in to press, in a letter dated "Stockholm, 20th April," addressed to Prof. Newton, Lieut. Sandeberg writes that he found 53 species of birds new to the peninsula of Kola, last year. He starts again shortly for further exploration in Kola, and, time permitting, in Kanin and Kolguef.

‡ The same subject is dealt with more fully by Prof. Palmén in a later paper in the '*Journal für Orn.*' for 1876, p. 40:—"Die geogr. Verbreitung der Hühner-, Sumpf- und Wasser-Vögel im faunistischen Gebiete Finlands." The particulars in '*Finlands Foglar*' are for the most part brought up to date in this later paper; and it also ought to be consulted in this place.

22 are given from the N.C., and 50 are recorded as occurring in the S.W.

12.

1873. ALSTON and HARVIE BROWN. "Notes from Archangel." ('Ibis,' Jan. 1873, p. 54.) N.C. (and S.W.)

We record in this paper in all 148 species from the N.C. and S.W., but mainly from the former. Some of these, however, hold a somewhat doubtful value, for reasons stated further on, viz. under notice no. 14, "List of Birds in the Government Museum, Archangel" (*vide infra*), and under the notes to the species (*vide p. 17*). 131 are recorded from the N.C., and 17 from the S.W.

13.

1876. H. SEEBOHM and HARVIE BROWN. "Notes on the Birds of the Lower Petchora." ('Ibis,' 1876, Jan., Apr., July, and Oct.)

1876. HARVIE BROWN. "Notes of a Journey to, and Ornithological Observations on the Lower Petchora." (Proc. Roy. Phys. Soc. Edinb. 1875-76, p. 81.)

1876. IDEM. "Remarks on Migratory Movements of Birds on the Lower Petchora." (Proc. Nat.-Hist. Soc. Glasgow, vol. iii. p. 44.)

1876. SEEBOHM. Articles in Dresser's 'Birds of Europe,' part xlvii. *et seqq.*

1876. IDEM. "On the Migration of Birds in North-east Russia." (Rowley's Orn. Misc. vol. i. part iv. p. 239.)

1877. HARVIE BROWN. "On the Distribution of Birds of North Russia. I. On the Distribution of Birds on the Lower Petchora, &c. (Annals & Mag. Nat. Hist., April.)

1877. SEEBOHM and HARVIE BROWN. Appendix to "Notes on the Birds of the Lower Petchora," printed separately and issued along with separata of 'Ibis' paper *ut sup.*

In this Appendix errors in identification and synonymy are corrected, the parallel discoveries of Messrs. Finsch and Brehm are recorded, as also those of Capt. Feilden; a *résumé* of the work accomplished in North Russia and an indication of what remains to be done are given, and also an announcement of shortly expected papers upon our subject.

113 species are recorded from the N.E. district, taking into account the corrections made in the Appendix.

14.

1876. "List of the stuffed Specimens of Birds in the Government Museum at Archangel," in MS. (155 species from the Archangel Government.)

All these, I have been repeatedly assured by Government officials, were undoubtedly procured in the Archangel Government. We may not, however, in all cases be justified in giving

the species represented an unequivocal right to be included in the fauna of the NORTHERN DIVISION, as many may, and no doubt have been procured in the Government south of our present limit of 64° 30' N. lat., and may more correctly come to be included in the fauna of the southern division. Besides, in the absence of a catalogue, there are one or two more which I am inclined to reject altogether from the fauna, for reasons which I will explain when I come to treat of the doubtful species at the end of this paper.

15.

1876. PIOTTUCH. Partial Lists of Collections sent home to England, bearing dates of 1875 and 1876, by Piottuch, collector at Archangel.

These lists only add, however, two records*; but they verify some of the previous records, which would otherwise remain doubtful.

16.

1876. Mr. F. C. CRAEMERS informs me also that he has added two species †, specimens of which are now in Mr. H. E. Dresser's collection. I am indebted also to Mr. Craemers for copies of the above partial lists of Piottuch's collections. M. Piottuch, however, has collected since 1872, but I have not seen all the lists.

Besides the above I find also the following:—

17.

1853. SCHRADER. "Beobachtungen über die Vögel Lapplands." (Journal für Orn. 1853, p. 242 ‡.) At page 243-44 a list of 20 species which were found by him in Russian Lappland.

18.

1876. DR. THEEL. "Note sur les oiseaux de la Nouvelle-Zemble." (Annales des Sc. Nat. 1876, tome iv. article 6.)

* *Pratincola rubicola?* and *Somateria spectabilis*.

† *Buteo desertorum* and *Fregilus graculus*.

‡ Among the references in the Tables I am obliged to leave this out in its proper chronological order, and to enter it at the end as No. 17, as also the following, which I only refer to in the "Notes:"—

1876. DR. B. RADAKOFF. "Hand-Atlas der geogr. Ausbreitung der im europäischen Russland nistenden Vögel zusammengestellt von Dr. B. Radakoff" (H. Berghaus's 'Atlas der Thier-Geographie,' Moscou, 1876). For notice of this, *vide* 'Ibis,' 1877, April, p. 225. The text will appear in Russian and be at once translated into German on its completion.

Explanation of the Symbols and Arrangement in the following Table.

Absent, or unrecorded, or insufficient data, a blank space. Present, |. Rare, ·|. Common, ||. Very common, ††. Exceedingly abundant, †††. Once, twice, or thrice occurred, recorded, identified, shot, added to the fauna, ▽, ▮, ▯. Occasional, *. Locally distributed, ⊙. Generally distributed, ○. Very doubtful records: the names of the species and the records enclosed in brackets; the number of the species omitted in the printing () (vide *F. sacer* of Tables). Less doubtful records: the names of the species and the records NOT enclosed in brackets, and the number of the species retained and printed, but a query in the columns, ?.

Table showing comparative Distribution of the Fauna in the three DISTRICTS of the NORTHERN DIVISION and the Faunal Value of the Species in each.

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
1. <i>Aquila chrysaëtus</i> , (L.)			▮	2, 10, 12, 13, 14.	
2. <i>Haliaëtus albicilla</i> , (L.)				1, 8, 10, 12, 13, 14, 15, 18.	
3. <i>Pandion haliaëtus</i> , (L.)			▮	4, 8, 10, 12, 13, 14.	
4. <i>Buteo vulgaris</i> , <i>Bechst.</i>				4, 8, 10, 12, 13, 15.	1
5. — <i>desertorum</i> , <i>Daud.</i>		▯		16.	2
6. — <i>lagopus</i> , <i>Brünn.</i>				1, 2, 4, 5 ¹ , 10, 13.	
7. <i>Pernis apivorus</i> , (L.)		*		4, 10, 12, 14.	
8. <i>Milvus iclinus</i> , <i>Savig.</i>		?		12?	3
9. — <i>migrans</i> , <i>Bodd.</i>				4, 8, 10.	
10. <i>Falco gyrfalco</i> , <i>Schleg.</i>				4, 5, 8, 10, 12, 14.	4
(— <i>sacer</i> ?)		()		(10.)	4
12. — <i>peregrinus</i> , L.				4, 5, 8, 10, 12, 13, 14, 15.	
13. — <i>subbuteo</i> , L.			▮	8, 10, 12, 13, 14, 15.	
14. — <i>vespertinus</i> , L.				4, 8, 12, 14, 15.	
15. — <i>æsalon</i> , L.			††	1, 2, 4, 8, 10, 13, 14.	
16. — <i>tinnunculus</i> , L.				10, 14, 15.	

¹ Vide Midd. no. 5, p. 201. Recorded as far north as 71 $\frac{1}{3}$ °:

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
17. <i>Accipiter palumbarius</i> , (L.)			✓	2, 8, 10, 12, 13, 14, 15.	
18. — <i>nisus</i> , (L.)			✓	4, 8, 10, 12, 13, 14.	
19. <i>Circus cyaneus</i> , (L.)				4, 8, 12, 13.	
20. — <i>ærginosus</i> , (L.)				8, 10 [?] , 14 [?]	5
21. <i>Surnia ulula</i> , (L.)				1, 2, 5, 8, 10, 12, 14, 15.	
22. — <i>nyctea</i> , (L.)				1, 2, 5, 8, 9, 10, 12, 13, 14, 15.	
23. <i>Glaucidium passerinum</i> , (L.) (<i>Athene noctua</i> , <i>Retz.</i>)			()	8, 10, 12, 14, 15. (10.)	6
25. <i>Nyctale Tengmalmi</i> , <i>Gmel.</i>				10, 14, 15.	
26. <i>Syrnium uralense</i> , (<i>Pall.</i>)				8, 10, 12, 14, 15, 17.	
27. — <i>lapponicum</i> , (<i>Retz.</i>)				8, 10, 12, 14, 15.	
28. <i>Asio otus</i> , (L.)		?		10 [?] , 14 [?] , 15 [?]	7
29. — <i>accipitrinus</i> , (<i>Pall.</i>)				2, 8, 10, 12, 13, 14, 15.	
30. <i>Bubo ignavus</i> , (<i>Forst.</i>)			≡	2, 8, 10, 12, 13, 14, 15.	
31. <i>Dryocopus martius</i> , (L.)				2, 8, 10, 12, 13, 14, 15.	
32. <i>Picus major</i> , L.				1, 8, 10, 12, 14.	
33. — <i>minor</i> , L.				1, 8, 10, 12, 13, 14, 15.	
34. — <i>leuconotus</i> , <i>Bechst.</i>		?		8 [?] , 10 [?] , 12 [?] , 14 [?]	8
35. <i>Picoides tridactylus</i> , (L.)				2, 8, 10, 12, 13, 14, 15.	
36. <i>Gecinus canus</i> , (<i>Gmel.</i>)		*		12, 14 ¹ .	9
37. <i>Yunx torquilla</i> , L.		*		8, 10, 14.	
38. <i>Cuculus canorus</i> , L.				1 ² , 2, 4, 8, 10, 12, 13, 14, 15.	
39. <i>Sitta europæa</i> , L.		†		10, 12, 14, 15 ³ .	10
40. <i>Corvus corax</i> , L.		††	††	1, 4, 8, 10, 12, 13.	
41. — <i>corone</i> , L.		✓		12.	11
42. — <i>cornix</i> , L.		††	††	1, 4, 8, 10, 12, 13, 15.	
43. — <i>frugilegus</i> , L.		†		1 ⁴ , 5, 8, 12.	
44. — <i>monedula</i> , L.		††	≡	1 ⁴ , 4, 8, 12, 13, 14, 15.	
45. <i>Fregilus graculus</i> , (L.)				16.	12
46. <i>Nucifraga caryocatactes</i> , (L.)		*		10.	13
47. <i>Pica caudata</i> , (L.)				1, 4, 8, 10, 12, 13, 14, 15.	
48. <i>Garrulus infaustus</i> , (L.)		††	††	2, 4, 10, 12, 13, 14, 15.	
49. — <i>glandarius</i> , (L.)		†		8, 10, 14.	

¹ And F. C. Craemers *in lit.*² Page 233.³ And Herr A. G. Nordvi *in lit.*⁴ Page 223, footnote.

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
50. <i>Sturnus vulgaris</i> , <i>L.</i>		*		14, 15.	
51. <i>Lanius excubitor</i> , <i>L.</i>				1, 2, 8, 10, 12, 14.	
52. — <i>collurio</i> , <i>L.</i>		?		12?, 14?	14
53. <i>Passer domesticus</i> , (<i>L.</i>)				4, 5, 8, 10, 12, 13, 15.	
54. — <i>montanus</i> , (<i>L.</i>)		††	††	4, 8, 10, 13, 14.	
55. <i>Pyrrhula major</i> , <i>Brehm</i>			·	4, 5, 8, 10, 12, 13, 14, 15.	
56. <i>Carpodacus erythrinus</i> , (<i>Pall.</i>)		·	≡	4, 12, 13, 14, 15.	
57. <i>Corythus enucleator</i> , (<i>L.</i>)		††	††	1, 2, 5, 8, 10, 12, 13, 14, 15.	
58. <i>Loxia curvirostra</i> , <i>L.</i>				8, 10, 12, 14, 15.	
59. — <i>bifasciata</i> , (<i>Brehm</i>)				4, 8, 10, 12, 14, 15.	
60. <i>Coccothraustes vulgaris</i> , <i>Pall.</i>		✓			15
61. <i>Fringilla cœlebs</i> , <i>L.</i>				4, 8, 12, 17.	
62. — <i>montifringilla</i> , <i>L.</i>				1, 2, 4, 8, 10, 12, 13, 15, 17.	
63. <i>Carduelis elegans</i> , (<i>L.</i>)		·	·	8, 10, 14.	
64. — <i>spinus</i> , (<i>L.</i>)				4, 8, 10, 12, 14.	
65. <i>Linota cannabina</i> , (<i>L.</i>)					
66. — <i>linaria</i> , (<i>L.</i>)			††	1, 2, 4, 8, 10, 12, 13, 14, 15.	16
67. — <i>exilipes</i> , (<i>Coues</i>)		††	††	13.	16
68. — <i>flavirostris</i> , (<i>L.</i>)		·		10, 15.	17
69. <i>Emberiza melanocephala</i> , <i>Scop.</i>		?		10?, 12?, 14?	18
70. — <i>aureola</i> , <i>Pall.</i>		††	††	4, 5 ¹ , 8, 10, 12, 14, 15, 22.	
71. — <i>citrinella</i> , <i>L.</i>			·	4, 8, 10, 12, 13, 14, 15, 17.	
72. — <i>rustica</i> , <i>Pall.</i>		·		8, 10, 12, 14, 15.	
73. — <i>pusilla</i> , <i>Pall.</i>		††	††	2, 4, 5, 8, 10, 12, 13, 14, 15.	
74. — <i>schœniclus</i> , <i>L.</i>		††	††	4, 8, 10, 12, 13, 15.	
75. <i>Plectrophanes nivalis</i> , (<i>L.</i>)		††	††	1, 2, 5, 8, 9, 10, 13, 14, 15.	
76. — <i>lapponicus</i> , (<i>L.</i>)			††	1, 8, 10, 12, 13, 14, 15, 18.	
77. <i>Alauda arvensis</i> , <i>L.</i>			·	8, 10, 12, 13, 17.	
78. — <i>alpestris</i> , <i>L.</i>			††	1, 2, 4, 8, 9, 10, 12, 13, 14, 15, 18.	
79. <i>Anthus trivialis</i> , (<i>L.</i>)			✓	4, 8, 10, 12, 13.	
80. — <i>pratensis</i> , (<i>L.</i>)				1, 2, 8, 10, 13, 14, 15.	
81. — <i>cervinus</i> , <i>Pall.</i>		·	††	4, 9, 12, 13, 15, 18.	
82. — <i>obscurus</i> , <i>Penn.</i>				1, 4, 17.	
83. — <i>Gustavi</i> , (<i>Swinhoe</i>)				13.	19

¹ Abundant in North Ural, Midd. p. 1046, footnote 7.

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
84. <i>Budytes viridis</i> , (<i>Gmel.</i>)				2, 4, 8, 10, 12, 13, 14.	
85. — <i>citreolus</i> , <i>Pall.</i>				13.	
86. <i>Motacilla alba</i> , <i>L.</i>				1, 2, 4, 8, 10, 12, 13, 14.	
87. <i>Cinclus melanogaster</i> (<i>Temm.</i>)				8, 10, 12, 14, 15.	
88. <i>Oriolus galbula</i> , <i>L.</i>		*		12.	20
89. <i>Turdus merula</i> , <i>L.</i>		✓		12.	
90. — <i>torquatus</i> , <i>L.</i>				4.	
91. — <i>pilaris</i> , <i>L.</i>		††		1, 2, 4, 8, 10, 12, 13.	
92. — <i>fuscatus</i> , <i>Pall.</i>				5.	21
93. — <i>viscivorus</i> , <i>L.</i>		?		1, 4?, 8?, 10?	22
94. — <i>iliacus</i> , <i>L.</i>				1, 2, 4, 8, 10, 12, 13, 14.	
95. — <i>musicus</i> , <i>L.</i>				4, 10, 12.	23
(<i>Erythaca rubecula</i> , (<i>L.</i>)		()		(10.)	24
97. <i>Cyanecula suecica</i> , (<i>L.</i>)			††	1, 2, 8, 10, 12, 13, 14, 15.	
98. <i>Ruticilla phœnicura</i> , (<i>L.</i>)				2, 4, 8, 10, 12, 13, 14, 17.	
99. <i>Saxicola cenanthe</i> , (<i>L.</i>)				1, 2, 4, 10, 13, 14, 15.	
100. <i>Pratincola rubetra</i> , (<i>L.</i>)				10, 12, 14, 15.	
(— <i>rubicola</i> , <i>L.</i>)		(✓)		(15.)	25 }
102. — <i>indica</i> , <i>Blyth</i>		?		13.	25 }
103. <i>Accentor modularis</i> , <i>L.</i>				17.	
104. <i>Sylvia garrula</i> , <i>Briss.</i>		·		4, 8.	
105. — <i>rufa</i> , (<i>L.</i>)				4, 8.	
106. <i>Sylvia salicaria</i> , (<i>L.</i>)				4, 8, 12.	Obs.
107. <i>Hypolais icterina</i> , (<i>Vieill.</i>)		?		2?	26
108. <i>Acrocephalus schœnobæus</i> , (<i>L.</i>)		††	††	4, 8, 12, 13.	Obs.
109. <i>Phylloscopus trochilus</i> , (<i>L.</i>)			††	4, 8, 10, 12, 13, 15.	
110. — <i>tristis</i> , <i>Blyth</i>		?	††	13.	29
(— <i>neglectus</i> , <i>Hume</i>)			(✓)	(13.)	27
112. — <i>Gæticii</i> , <i>Seebohm.</i>			✓	13.	28
(— <i>collybita</i> , (<i>Vieill.</i>)		()		(4), (10).	29
(— <i>sibilatrix</i> , (<i>Bechst.</i>))		()		(12.)	30
115. — <i>borealis</i> , <i>Blas.</i> ¹			✓	8, 12, 13, 15.	

¹ *Vide* Postscript, p. 30.

Species.	N.W.	N.O.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
116. <i>Parus major</i> , <i>L.</i>		*		8, 10, 14.	
117. — <i>cæruleus</i> , <i>L.</i>		*		8, 10, 14.	31 }
118. — <i>ater</i> , <i>L.</i>		(1)		1, 8, 10 ² , 14.	31 }
119. — <i>borealis</i> , <i>De Selys</i>		††		1, 2, 4, 8, 10, 12, 14.	
120. — <i>kamschatkensis</i> , <i>Bp.</i>				13.	
121. — <i>cinctus</i> , <i>Bodd.</i>				8, 10, 12, 13, 14, 15.	
122. — <i>cristatus</i> , <i>L.</i>		·		8, 12.	
123. <i>Acredula caudata</i> , (<i>L.</i>)		·		14, 15.	
124. <i>Ampelis garrula</i> , <i>L.</i>			·	8, 12, 13, 14, 15.	
125. <i>Muscicapa grisola</i> , <i>L.</i>				4, 8, 10, 12, 15, 17.	
126. <i>Hirundo urbica</i> , <i>L.</i>		·		8, 12, 17.	
127. — <i>rustica</i> , <i>L.</i>		·		1, 4, 8, 12, 13.	
128. — <i>riparia</i> , <i>L.</i>		††		1, 2, 4, 8, 12, 13, 14.	
129. <i>Cypselus apus</i> , (<i>L.</i>)		·		4, 12, 14, 17.	
130. <i>Caprimulgus europæus</i> , <i>L.</i> . . .		*		12.	
131. <i>Columba palumba</i> , <i>L.</i>		·		4, 8, 10, 12, 14.	
132. — <i>œnas</i> , <i>L.</i>		?			32
133. — <i>livia</i> , <i>Briss.</i>			?	14.	
134. <i>Syrhaptus paradoxus</i> , <i>Pall.</i> . .		≡		10, 12, 14.	
135. <i>Lagopus albus</i> , (<i>Gm.</i>)		††	††	1, 2, 4, 5, 8, 10, 12, 13, 14, 15.	
136. — <i>mutus</i> , <i>Leach</i>		()		1, 5, 9 (10) (14).	33
137. <i>Tetrao urogallus</i> , <i>L.</i>				1, 2, 5, 10, 12, 13, 14, 17.	
138. — <i>urogallo-tetrix</i> , (<i>Stund.</i>) . .				17.	34
139. — <i>tetrix</i> , <i>L.</i>			✓	1, 2, 5, 10, 12, 13, 14, 15, 17.	
140. — <i>bonasia</i> , (<i>L.</i>)		††		1, 2, 4, 5, 8, 10, 12, 13, 14, 15.	
141. <i>Coturnix communis</i> , <i>Bonmat.</i> .		?		1, 11, 12, 14.	35
142. <i>Glaireola pratincola</i> , (<i>L.</i>) . .		✓		14.	
143. <i>Charadrius pluvialis</i> , (<i>L.</i>) . .			††	1, 2, 4, 8, 9, 10, 12, 13, 14, 18.	
144. <i>Squatarola helvetica</i> , <i>Briss.</i> .		·	††	8, 10, 12, 13, 14.	
145. <i>Eudromias morinellus</i> , (<i>L.</i>) . .				4, 5, 8, 9, 10, 13, 14, 18.	
146. <i>Ægialites hiaticula</i> , (<i>L.</i>) . .			††	1, 2, 4, 8, 9, 10, 12, 13, 14, 15.	
147. — <i>curonicus</i> , <i>Besecke</i>			·	8, 13, 14.	
148. <i>Vanellus vulgaris</i> , <i>M. & W.</i> .		*		8.	
149. <i>Hæmatopus ostralegus</i> , (<i>L.</i>) . .		††	††	1, 2, 4, 8, 10, 12, 13, 14.	

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
150. <i>Strepsilas interpres</i> , (L.)		*		1 ¹ , 10, 12, 14, 15.	
151. <i>Grus communis</i> , <i>Bechst.</i>			≡	2, 5 ² , 8, 10, 12, 13, 14, 15.	
152. <i>Platalea leucorodia</i> , L.		*		8, 11, 14.	
153. <i>Numenius phæopus</i> , (L.)			≡	4, 8, 10, 13, 14.	
154. — <i>arquata</i> , (L.)				4, 8, 10, 12, 14.	
155. <i>Limosa ægocephala</i> , (L.)		*		10, 12, 14, 17.	
156. — <i>lapponica</i> , (L.)		·	∨	1, 10, 12, 13, 14.	
157. <i>Scolopax rusticola</i> , (L.)		·		8, 10, 14.	
158. <i>Gallinago major</i> , (Gm.)			‡‡	5 ³ , 12, 13, 14.	
159. — <i>gallinaria</i> , (Gm.)		·		2, 4, 8, 10, 12, 13, 14.	
160. — <i>gallinula</i> , (L.)		·		2, 8, 10, 14.	
161. <i>Calidris arenaria</i> , (L.)		·	·	8, 9, 10, 12, 13, 14.	
162. <i>Tringa canutus</i> , L.		·		1, 8, 10, 14, 15.	
163. — <i>maritima</i> , <i>Brünn.</i>		·		1, 4, 9, 10, 14, 18.	
164. — <i>subarcuata</i> , (Güld.)		·	∨	12, 13.	
165. — <i>alpina</i> , L.			‡‡	1, 9, 10, 12, 13, 14, 18.	
166. — <i>minuta</i> , <i>Leisl.</i>			‡‡	3, 9, 10, 12, 13, 14, 18.	
167. — <i>Temminckii</i> , <i>Leisl.</i>		‡‡	‡‡	1, 8, 10, 12, 13.	
168. <i>Limicola platyrhyncha</i> , <i>Tem.</i>		∨		8.	
169. <i>Totanus canescens</i> , (Gm.) . . .				2, 4, 8, 10, 12, 13, 14, 15.	
170. — <i>fuscus</i> , (L.)		·		1, 10, 13, 14, 17.	
171. — <i>calidris</i> , (L.)				1.	
(<i>Totanus stagnatilis</i> , <i>Bechst.</i>)		()		(14.)	36
173. — <i>glareola</i> , (L.)		‡‡	‡‡	2, 4, 8, 10, 12, 13, 14, 15.	
174. — <i>ochropus</i> , (L.)				10, 12.	
175. <i>Terekia cinerea</i> , (Güld.)		‡‡	‡‡	1 ⁴ , 2, 4, 8, 10, 12, 13, 14, 15.	
176. <i>Actitis hypoleuca</i> , (L.)		⊙	· ⊙	2, 4, 8, 12, 13.	
177. <i>Machetes pugnax</i> , (L.)		‡‡	‡‡	1, 2, 5, 10, 12, 13, 14, 15.	
178. <i>Recurvirostra avocetta</i> , L. . .		∨		14.	
179. <i>Himantopus candidus</i> , <i>Bonmat.</i>		∨		14.	
180. <i>Phalaropus hyperboreus</i> , (L.)			‡‡	1, 2, 9, 10, 13, 18.	
181. <i>Crex pratensis</i> , <i>Bechst.</i>		∨		10.	37

¹ In this connexion also see Von Heuglin ('Ibis,' 1870, p. 62) regarding the occurrence of this species in Novaya Zemlia.

² "Brandt found it in 68° N." (*vide* Midd. p. 1029 of 'Die Thier. Sib.,' footnote 11.

³ *vide* Midd., Die Thier. Sib. p. 1030, footnote 2.

⁴ Footnote, page 221.

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
182. <i>Ortygometra porzana</i> , (L.) ..				10, 12, 14.	
183. <i>Gallinula chloropus</i> , (L.) ..		*		10, 12, 14.	
184. <i>Fulica atra</i> , L.		*		8, 10, 14.	
185. <i>Anser cinereus</i> , Meyer		?		12 [?] , 17.	38
186. — <i>segetum</i> , Gm.			††	9, 10, 12, 13, 14.	
187. — <i>albifrons</i> , Bechst.				1, 10, 12, 14.	
188. — <i>leucopsis</i> , Bechst.				1 ¹ , 10.	
189. — <i>brenta</i> , Pall.			††	9, 10.	
190. <i>Cygnus olor</i> , Gm.				10.	
191. — <i>musicus</i> , Bechst.			††	1, 8, 9, 10, 13, 14.	
192. — <i>minor</i> , Pall.				10, 13.	
193. <i>Spatula clypeata</i> , (L.)		††	·	2, 4, 8, 10, 12, 13, 14, 15.	
194. <i>Anas boschas</i> , L.				1, 2, 8, 10, 12, 14.	
(— <i>strepera</i> , L.)		()		(8), (10), (12), (14).	39
196. — <i>penelope</i> , L.			††	1, 2, 4, 8, 9, 10, 12, 13, 14, 18.	
197. — <i>acuta</i> , L.		††	††	1, 2, 4, 8, 12, 13, 14, 15.	
198. — <i>circia</i> , L.		·	·	10, 12, 14.	
199. — <i>crecca</i> , L.		††	††	1, 2, 4, 8, 10, 12, 13, 14.	
200. <i>Fuligula cristata</i> , (L.)			≡	2, 4, 8, 10, 12, 13, 14, 17.	
201. — <i>marila</i> , (L.)		·		2, 4, 8, 10, 12, 13, 14, 15.	
202. — <i>ferina</i> , (L.)				2, 4, 10, 12, 14.	
203. — <i>nyroca</i> , (Güld.)				8, 12, 14.	
204. — <i>glaucion</i> , (L.)				2, 4, 8, 10, 12, 13, 14, 15.	
205. — <i>glacialis</i> , (L.)			††	1, 2, 8, 9, 10, 12, 13, 14, 18.	
(<i>Histrionicus torquatus</i> , (L.)) ()				(11.)	40
207. <i>Somateria mollissima</i> , (L.) ..				1, 4, 8, 9, 10, 14.	
208. — <i>spectabilis</i> , (L.)		·		9, 15.	
209. — <i>Stelleri</i> , (Pall.)				11.	40 b
210. <i>Oedemia nigra</i> , (L.)		††	††	2, 4, 5, 8, 9, 10, 12, 13, 14, 15:	
211. — <i>fusca</i> , (L.)			≡	1, 4, 9, 10, 12, 13, 14.	
212. <i>Mergus merganser</i> , L.			·	8, 9, 10, 12, 13, 14, 15.	
213. — <i>serrator</i> , L.				10, 12, 13, 14, 18.	
214. — <i>albellus</i> , L.				2, 10 12, 13, 14, 15.	
215. <i>Podiceps griseigena</i> , (Bodd.)				10, 12, 14, 17.	
216. — <i>auritus</i> , L.				10.	

Species.	N.W.	N.C.	N.E.	References to Authorities in foregoing List.	References to Notes at p. 17 et seqq.
(Podiceps cristatus, (L.))		()		(10.)	41
218. Colymbus arcticus, L.		††	††	2, 8, 10, 12, 13, 14, 18?	
219. — glacialis, L.				9?, 11 ¹ , 18?	
220. — septentrionalis, L.		††		1, 2, 4, 8, 9, 10, 12, 13, 14, 15.	
221. Alca torda, L.				4.	
222. Mormon arctica, L.				1, 4, 14.	
223. Uria troile, (L.)				4, 10.	
224. — lomvia, (L.)			?	9?, 10.	
225. — grylle, (L.)				1, 2, 4, 8, 10, 14.	
226. Mergulus alle, (L.)				9, 11.	
227. Procellaria glacialis, L.				1, 4.	
228. Stercorarius pomatorhinus, Tem.				9, 10, 11, 12, 18.	
229. — crepidatus, Gm.		·		2, 9, 13, 15.	
230. — parasiticus, L.		·	††	1, 8, 9, 10, 13, 18.	
231. Rissa tridactyla, (L.)				1, 4.	
232. Larus glaucus, Brünn.				2, 4, 9, 10, (11), 13, 14, 18.	41b
233. — leucopterus, Fab.		·		10.	
234. — eburnea, (Gm.)			·	9, 10, 14.	
235. — marinus, L.			·	1, 4, 10, 12, 13, 14.	
236. — fuscus, L.			?	2, 8, 9?, 12.	42
237. — argentatus, L.				4, 10, 12.	41b
238. — affinis, Reinh.		††	††	9?, 12, 13.	42
239. — canus, L.		††	††	1, 2, 4, 8, 10, 12, 13, 14.	
240. — ridibundus, L.		·		10, 12.	
241. — minutus, Pall.				4, 8, 10, 12, 14.	43
242. Sterna macroura, Temm.				1 ² , 2, 4, 8, 9, 10, 12, 13, 14, 18.	
(— fluviatilis, Naum.)		()		(4)	44
244. Hydrochelidon fissipes, (L.)				14.	
245. — nigra, (L.)				14.	
246. Sula bassana, (L.)				4.	
247. Phalacrocorax carbo, (L.)				1, 4, 14.	
248. — graculus, (L.)				1.	
249. Emberiza pithyornis, Pall.			✓	·	

¹ Vide Gillett, 'Ibis,' 1870, p. 308: possible occurrence in Novaya Zemlya?

² Page 220.

³ Midd. 'Die Thier. Sib.' p. 1046, footnote 7.

NOTES AND CRITICISMS OF DOUBTFUL RECORDS IN PART II.

Having now indicated the total number of species recorded as belonging to the fauna, and having marked as doubtful and requiring further confirmation some of these records, it may be as well to state my reasons for excepting these from the thoroughly authentic list, so that, should I be in error, the species may all the more easily be reinstated at any future time.

In the Table, and also in the following notes, decidedly doubtful records, resting upon what appear to me insufficient data, are enclosed in brackets and have no number preceding them.

Besides the above there are others which are open to a certain amount of doubt, and, though recorded as occurring or having occurred in the Archangel Government, may have been procured from localities south of our present limits. As already mentioned above (p. 9), these species in the Table and in the following notes are retained in the numbering, and are not enclosed in brackets, but are marked with a query (?) in the columns.

(1) *Buteo vulgaris*, Bechst. No. 4 in Table.

Prof. Newton, writing in 1871 (Yarrell's 'British Birds,' vol. i. p. 112), puts the recorded northern range of this species as "between Lake Onega and Archangel," on the authority of Lilljeborg, and says:—"From this point its course is not so easily traced, few of the Russian ornithologists having met with it except in the southern provinces of their country." In our collection of North-Russian birds I have a Common Buzzard shot by myself at Ijma, near Archangel, in 1872; and Alston had a young bird taken from a nest at the same locality (*vide* 'Ibis,' 1873, p. 58).

(2) *Buteo desertorum*, Daud. No. 5 in Table.

This was added to the fauna of the north-central district by Mr. F. C. Craemers, who received one specimen from Archangel, since when two more, one in adult dress, were sent by Mr. Piottuch, all three being now in Mr. H. E. Dresser's collection.

(3) *Milvus iclinus*, Savig. No. 8 in Table.

I am unwilling to altogether relinquish the record given by my friend Alston and myself ('Ibis,' 1873) of the occurrence of this species at Archangel, but perforce must do so in part,

* Herr Meves (J. für Orn. 1875, p. 432) states that this species is not uncommon in the Government of Perm, near Kungur.

as I find it unsupported by any other observers before or since: while applying the rule to other people's records, I must, of course, apply it to our own where the least doubt occurs. We did not *handle* any specimens of Kites at Archangel; but the deeply forked tail and very rufous colour of one that was fired at and wounded, and which fell to the ground, but recovered and made off, was what induced our *perhaps* too positive record in 1873. I have since then made the acquaintance of both species in another country (Transylvania), and morally I feel convinced of the correctness of our Russian observations; in accordance with the rule, however, I attach a query to the record*.

(4) *Falco gyrfalco*, Schleg. No. 10 in Table.

Herr Goebel also includes *Falco sacer* (sic); but *Falco gyrfalco* is doubtless intended, as he does not elsewhere take notice of the last-named species, although it is included in the collection in the Archangel Museum. Herr Meves also mentions having obtained an egg of this species (*Falco gyrfalco*) taken in Kañin.

(5) 19. *Circus æruginosus* (L.)? No. 20 in Table.

Meves shot a specimen at Kasnosoffskaya, which locality I identified with Knaschestrowskaya, near Archangel (Stieler's Hand-Atlas, No. 31).

(6) (*Athene noctua*, Retz.) No number.

Herr Goebel's record of this species is the only one I can find. I did not observe any specimen of it in the Archangel Museum in 1875; nor have any specimens been sent home, that I can hear of †.

* Our record, however, is strongly supported by Dresser (B. of Europe, part xl.), who says, "In Russia it certainly occurs as far north as Archangel, where my collector informs me it is not rare."

† I wish here to say a few words in connexion with my criticisms of some of Herr Goebel's records. I wrote some months ago to Herr Goebel, care of Professor Cabanis, Berlin, for further information concerning some of the species by him recorded as occurring or breeding in the Archangel district. Up to this time (the date of going to press) I have had no communication from him, so am unwillingly obliged to send in the MS. as it stands. I hope, however, at some future opportunity to treat more fully of the breeding-zones of birds in North Russia, when I may be able more critically to examine the records of breeding species. Meanwhile I will only mention here some of the records which appear to me to require fuller authentication, which, I believe, it is quite possible Herr Goebel may be able to supply, as he states that many of the eggs purchased or otherwise obtained by him at Archangel have pencil notes

(7) *Asio otus* (L.). No. 28 in Table.

Same category as No. 19.

(8) *Picus leuconotus*, Bechst. No. 34 in Table.

Same category as No. 19.

(9) *Gecinus canus*, Gmel. No. 36 in Table.

I am assured that this species has occurred several times close to Archangel, by Mr. F. C. Craemers, who also informs me that there are specimens in a gentleman's possession in Archangel which were killed there.

(10) *Sitta europæa*, L. No. 39 in Table.

Herr Nordvi, in a letter to me dated March 1876, informs me that Graf Hoffmannsegg found the eggs of this species near Archangel, verifying other observations of its occurrence in our present division. Piottuch has also sent home specimens of the bird amongst his earlier collections since 1872.

(11) *Corvus corone*, L. No. 41 in Table.

There is one specimen of this bird in Herr Heinrich's collection, which was shot at Archangel. It appears to have escaped the notice of Herr Meves and Herr Goebel, or to have been obtained subsequent to their visit to Archangel (*vide* 'Ibis,' 1873, p. 65).

(12) *Fregilus graculus* (L.). No. 45 in Table.

Auct. F. C. Craemers (*in lit.*).

upon them, presumably in Herr Hencke's handwriting. It would have added considerably to the permanent value of Herr Goebel's already useful paper had he supplied fuller notes on the breeding-records given by him. That some are admittedly very doubtful, Herr Goebel himself points out. I would instance the record of the Gadwall breeding at Archangel, eggs in the museum being marked "Archangel," while the birds are labelled "Astrackan." I proceed to enumerate those which appear to me especially to require confirmation, or fuller (published) record, as breeding species:—

Lagopus mutus. See my notes on this species.

Nucifraga caryocatactes. *Vide* notes.

Erythaca rubecula. "

Tringa minuta. "

Calidris arenaria. "

Anser albifrons. "

Somateria mollissima. "

Anas strepera. "

(13) *Nucifraga caryocatactes* (L.). No. 46 in Table.

The record of this species by Herr Goebel as occurring in large flocks ("ungeheure Schaaren") and remaining only a few days at Archangel, on and after the 29th August, 1864, is of special interest, finding its parallel in various other similar invasions of the species into different parts of Europe in unusual numbers, notably in 1844 and 1847. The invasion recorded by Herr Goebel, however, would appear to have been restricted in its extent, as I cannot find any special mention made of their appearance in other northern countries during 1864. I consider that the breeding of this species north of 64° 30' N. lat. requires further published authentication.

(14) *Lanius collurio*, L.? No. 52 in Table.

Same category as No. 19.

(15) *Coccothraustes vulgaris*, Pall. No. 60 in Table.

One specimen of this species was got by Seebohm and myself in the German cemetery at Archangel on the 14th March, 1875.

(16) *Linota linaria* (L.), and *L. exilipes* (Coues).
Nos. 66 & 67 in Table.

Vide Part I. of this paper ('Annals,' table at p. 285, nos. 30, 31 of list).

(17) *Linota flavirostris* (L.). No. 68 in Table.

Several specimens have been sent home by Piottuch, which were obtained at Archangel in summer; and Mr. F. C. Craemers informs me that specimens are in both his own and Dresser's collections. Mr. Dresser, however, says nothing of the occurrence of this species so far north in Russia (*vide* 'Birds of Europe,' part 53). Herr Goebel records it as breeding, but apparently on the sole evidence of his having obtained eggs supposed to have been correctly named and marked by Herr Hencke. All the more doubt attaches to these and various other records of breeding given by Herr Goebel, because the eggs he obtained, which were marked by Hencke, appear to have been brought together from various localities. It is possible that this species may breed in small numbers within our limits, judging from records of its occurrence in summer as far and further to the north in other parts of Europe (*op. cit.* part 53). I do not, however, find record of it in the SOUTHERN DIVISION in any of the papers I have at present access to.

(18) *Emberiza melanocephala*, Scop. No. 69 in Table.

Same category as No. 19.

(19) *Anthus Gustavi* (Swinhoe), P. Z. S. 1863.
No. 83 in Table.

Vide Appendix to "Notes on Birds of the Lower Petchora" (issued with separate copies, 1877), where it is shown that our supposed new Pipit (*Anthus Seebohmi*, Dresser) has since been identified with *Corydalla Gustavi* of Swinhoe, we having examined specimens of Swinhoe's types from Northern China. (*Vide* also 'Ibis,' 1877, p. 128.)

(20) *Oriolus galbula*, L. No. 88 in Table.

Same category as No. 19.

(21) *Turdus fuscatus*, Pall. No. 92 in Table.

Concerning the occurrence of this species in Europe and within our limits I cannot do better than quote from Brandt's paper before mentioned. "Two specimens of this species so much sought after by collectors of European birds and whose summer residence may be considered to be Northern Asia (not exactly Arctic Asia) and Central Asia, but not, as Pallas says, Dauria, the Selenga, the Tunguska, and Upper Jenesei only, were shot on the 6th July near the sources of the Petchora under the 62° of N. latitude; a third was shot near Mansantansse-tump, between 64° and 65° N. lat."

I cannot discover this latter locality upon Stieler's Atlas; but as the Ural Expedition for the most part followed the western slope of the Ural, it is reasonable to suppose that it occurred within our limits. In any case those obtained near the sources of the Petchora will admit the species to the fauna of the SOUTHERN DIVISION.

(22) *Turdus viscivorus*, L. No. 93 in Table.

We have no *direct* evidence of its occurrence north of 64° 30' N. lat., Meves merely saying that it was found by him "in many large flocks in the *department* of Archangel." (The italics are mine.)

(23) *Turdus musicus*, L. No. 95 in Table.

I enter this on the authority of Lilljeborg first, and then on Goebel's (1873). The latter author records finding a nest of this species containing four eggs, at Archangel, in June 1864. In 'Journal für Orn.' 1869, p. 318, Herr Goebel makes

mention of having taken the eggs of a Siberian species of Thrush in the Archangel Government in June 1865, the eggs like small specimens of those of *T. musicus*, and shot the female; but he makes no mention of this rarity in the paper published in the same journal in 1873. Without an examination of this latter specimen and its eggs, we have no data upon which to admit it, as Herr Goebel does not give it any name.

(24) (*Erythaca rubecula* (L.)) No number.

The only records of the occurrence of this species are given by Herr Goebel, who twice instances its breeding at Archangel, and records that he himself took or obtained the eggs when there. I cannot help regretting, however, that he does not, in this and in many other instances, more fully authenticate his observations, in cases especially where previous writers have failed to observe the species under consideration. I may add that the Robin has never been recorded, to my knowledge, from North Russia (within our present limits) since Herr Goebel's records; and I am obliged therefore, reluctantly, to place it amongst the most doubtful records.

(25) (*Pratincola rubicola* (L.), and *P. indica*, Blyth.) No. 102.

After careful searching I find that only one record of any Stonechat has been given from the north-central district, viz. that of "*P. rubicola*," in the lists of Piottuch's collections, alongside with "*P. rubetra*." The species obtained on the Petchora by Seebohm and myself, however, being *P. indica*, I believe that upon examination this specimen will be found to belong to the latter, and probably occurred at Archangel in autumn on migration. I therefore place *rubicola* in the table in brackets, and place a query opposite *indica* in the column for the N.C. District. This appears to be further justified by the absence in any lists I have examined of *P. rubicola* or *P. indica* in the Scandinavian peninsula or in Finland, and by their further absence in the SOUTHERN DIVISION of North Russia.

I may here mention that an easy means of distinguishing *P. indica* from *P. rubicola* will be found on comparing the axillary feathers under the wings of the two species, the prevailing colour in *indica* being black, but in *rubicola* white—*indica* having the axillaries faintly and narrowly edged with white, *rubicola*, on the other hand, having them distinctly and broadly edged with white, which gives them a much whiter appearance.

The statement, therefore, in my paper in 'Proc. Roy. Phys. Soc. Edinb.' (1875-76, p. 81) is premature and unfounded.

Obs.—(*Sylvia salicaria* (L.)). Prof. Newton mentions (Yarrell, vol. i. p. 421) that "Herr Meves found it pretty numerous at several places in North-west Russia." All Herr Meves's records of it, however, apply to localities south of our limits. I would therefore take the opportunity of pointing out that the expression "N.W. Russia" in this and other instances must not be considered equivalent to our "N.W. District."

(26) "*Sylvia hypolais*" (sic). No. 107 in Table.

This record by Bystrov-Brandt is the only one I can find of the occurrence of what it may be presumed is intended for *Hypolais icterina* (Vieill.) so far north. One skin is mentioned in the "List" as having been sent from Mezén; but all other records I find of its occurrence are from localities considerably to the southward of our limits. Judging from analogy, I am inclined to consider that this must have been an exceptional instance of its occurring so far north in Russia, as its range in Norway only reaches to 67° N. (Collett). *Vide* Introductory Remarks in this paper.

Obs.—*Acrocephalus dumetorum*, Blyth (*Salicaria magnirostris* (Lillj.)). I can hardly admit this within our limits yet, though it is possible that it may be found as far north as Archangel. Lilljeborg records it as occurring "between Kargopol and Cholmongory;" but I find no positive record of its occurrence at the latter locality.

(27) (*Phylloscopus neglectus*, Hume.). No number.

This species is now found to have been erroneously admitted to our list of "Birds of the Lower Petchora," as the specimen which was thought to belong to this species turns out to be merely a pale variety of *P. tristis*, and not true *P. neglectus* ('Ibis,' 1876, p. 503, and Appendix to our paper "Notes on Birds of the Lower Petchora," issued with the separate copies).

(28) *Phylloscopus Gaetkii*, Seebohm, 'Ibis,' Jan. 1877, p. 92 (= *P. major*, Tristram, *nec* Forster). No. 112 in Table.

We are now able to add this to the European list and to the fauna of the N.E. District, as the bird mentioned by

us in 'The Ibis,' 1876, p. 26, has been assigned to it (*vide* also Appendix to our paper in 'The Ibis' issued with *separata*).

(29) (*Phylloscopus collybita*, Vieill.) No number.

I find records of this species by Lilljeborg and Goebel unsupported by other evidence of its occurrence so far north. Mejakoff gives it as rather rare even in the south of the Vologda Government*; but Meves gives it as tolerably common in the S.W. District. I consider its occurrence in the NORTHERN DIVISION very doubtful.

Lilljeborg's description is too vague for purposes of satisfactory identification, but seems to me more nearly to answer to that of *P. tristis*, which species is more likely to occur there in autumnal migration than *P. collybita*. In Norway the latter has been recorded as far north as 67° N. lat. (Collett, 1876); but I cannot find any record of its occurrence in the north of Finland. Goebel records "*P. rufa*" three times, and mentions having once found the eggs; but there is nothing in his records to satisfy us that they should not have been applied to another species. I have concluded, then, to place *P. collybita* in brackets and to place a ? opposite *P. tristis* in the column for the N.C. District.

(30) (*Phylloscopus sibilatrix* (Bechst.)) No number.

I cannot now find any specimens of this species in our collections from Archangel, although Alston and I recorded its occurrence in 1873; nor can Alston apparently now corroborate our record. I therefore enclose it in brackets, *vide* Postscript, p. 30.

(31) *Parus cæruleus*, L. *Parus ater*, L. Nos. 117 & 118 in Table.

Herr Meves records these two species, but not from personal observation, and probably quoting Goebel. Herr Goebel includes *P. cæruleus* from his own observation; but his record of *P. ater* appears to be founded on the single example in the museum. I prefer here to give the latter a doubtful claim to having occurred north of 64° 30' N. lat.

(32) *Columba œnas*, L. No. 132 in Table.

Same category as No. 19.

(33) *Lagopus mutus* (Leach). No. 136 in Table.

The line of the eastern range of this species must still be

* Bull. de la Soc. Imp. des Nat. de Moscou, 1856, p. 630.

considered doubtful. Professor Palmén ('Finlands Foglar,' vol. ii. p. 44) records it from the mountainous country near Lake Imandra, between Kandalax and Kola. Lilljeborg, quoting Middendorff, says (K. V. A. Handl. 1850, p. 320), "It seems to become rarer and rarer in Russian Lapland towards the White Sea; he seems to consider, therefore, that its eastern boundaries are here." Herr Goebel records that large numbers of this bird are brought to the annual fair at Pinega from the district of Kem; but I think it is more than probable that these came to Kem in the first instance from a much more westerly locality, or from the localities above taken notice of. At all events the presence of specimens in the Pinega market sent from Kem does not entitle the species to a place in the Archangel fauna (*i. e.* N.C.); nor does the presence of a specimen in the museum suffice. Goebel also includes it amongst the eggs procured, but gives no authentication. I think it exceedingly doubtful that it exists on the east shore of the White Sea except in a frozen state, unless it may occur in Kanin. Of its occurrence on the west shore of the White Sea we have records in 'Finlands Foglar,' vol. ii. p. 44 (Triostrov, near the mouth of the Ponoj river, in 67° N. lat.).

In the N.E. District we have records of *Lagopus alpinus*, Nilss., from the Northern Ural (Hoffman), in 66° N. lat., and from Waigats, by Von Heuglin, of a *Lagopus*, probably of this species.

- (34) *Tetrao urogallo-tetrix*, Sund. (*v.* Collett's 'Birds of Northern Norway,' p. 50). No. 138 in Table.

Under the name of *Tetrao medius*, Schrader includes this hybrid in his list of birds found in Russian Lapland. The name *T. urogalloides*, Nilsson, for a long time has been that in most general use, but has been taken up by Middendorff for a totally different species from Kamtschatka. Linnæus named a *Tetrao hybridus*, but it remains uncertain to which hybrid this name was applied. Sundevall re-named this bird *Tetrao urogallo-tetricides* in 1869; but Collett very properly explains away the termination *-ides* (*tom. cit.* p. 50), and suggests the name standing at the head of this notice. This name should, I think, stand, *i. e.* if a hybrid is deserving at all of such distinction.

- (35) *Coturnix communis*, Bonnat. No. 141 in Table.

In 'Finlands Foglar' the Common Quail is recorded from Lutvajärvi, 65° N., near the Finnish frontier, a specimen

having been procured there on June 29, 1839 ('F. F.' p. 55); and Alston and myself saw two specimens in the flesh at Suzma, on the south coast of the White Sea, about 90 versts west from Archangel. Its occurrence in the N.C. District is not actually on record, although those seen by us were not far removed from the western boundary of it.

(36) (*Totanus stagnatilis*, Bechst.) No number.

I find this included in a list of the birds in the museum made by me in 1875; but I think there must have been some mistake, as I have no recollection of seeing a specimen there, and I find no other notice of its presence nor evidence of its occurrence in the NORTHERN DIVISION.

(37) *Crex pratensis*, Bechst. No. 181 in Table.

The only one on record appears to be the solitary specimen noticed by Goebel (J. für Ornith. 1873). In 1872, when we were at Archangel, Alston and I imitated the cry in presence of our boatmen, who appeared readily to recognize it ('Ibis,' 1873, p. 67). As Meves, however, and also Lilljeborg seem to consider it rare at even much more southerly localities, it is possible that we may have misunderstood our men, or our men may have misunderstood us. We have, however, the above single positive record of its occurrence, and so can admit it to a place in this list.

(38) *Anser cinereus*, Meyer. No. 185 in Table.

Mr. Alston and I record this species as occurring in the N.C. District; but I consider now that some doubt attaches to this record. It is possible, however, that it may be reinstated in the N.C. District, as Schrader has recorded it from the N.W.*, and it is said to occur in East Finmark and to breed in West Finmark at Tamsö†. Herr Goebel also records the possible ("?" sic) occurrence of it to the southward (J. für Orn. 1871, p. 22 footnote).

(39) *Anas strepera* (L.). No number.

Extreme doubt attaches to even the occurrence of this species within our limits; and, as Herr Goebel has pointed out, still more attaches to the record of its breeding, or having bred—the eggs in the museum at Archangel being marked "Archangel," while the birds are labelled (or catalogued?) from Astrakan. This error or uncertainty seems to have arisen

* J. für Orn. 1853, p. 244.

† Sommerfeldt (Dresser, 'Zoologist,' 1867, p. 773).

in earlier and been perpetuated in later records (*cf.* Meves, p. 780; Alston and Harvie Brown, p. 71). Meves notes having once seen this species at Ladoga Canal; so it is just possible stray examples may occur as far north as Archangel. Meanwhile, however, it must only hold the value indicated by the brackets.

(40) *Histrionicus torquatus* (L.). No number.

The only record appears to be that by A. v. Nordmann, who reports having seen one pair on the coast near Kem ('Finlands Foglar,' vol. ii. p. 480). Until further record appears, I have enclosed it in brackets. The occurrence is possible, but must be considered extremely improbable. It has been recorded also as occurring in Northern Norway; but Mr. Collett attaches great doubt to the authenticity of the record ('Map of Norway,' letterpress: Christiania, 1876*).

(40*b*) *Somateria Stelleri*, Pall. No. 209 in Table.

Nordvi records this species as breeding in Russian Lapland; but Meves (J. für Orn. 1875, p. 433) gives good reasons for doubting it.

(41) *Podiceps cristatus* (L.). No number.

Its recorded presence rests solely upon a clutch of four eggs, brought to Herr Goebel by a person employed by him to gather eggs. Herr Goebel does not inform us that they were authenticated by the bird being shot; nor can the measurements or shape of these eggs, as given by him, be considered alone sufficient for their authentication. I cannot admit this without more minute and careful authentication. It does not occur in Norway north of 61° (Collett, 1876, 'Map of Norway'); and it would appear to be scarce in the SOUTHERN DIVISION of North Russia, judging from the paucity of records.

(41*b*) *Larus glaucus*, Brünn. No. 232 in Table.

Dr. Meves has evidence that *L. argentatus* is the only species of Gull breeding on Solovetsk, from Lieut. Sandeberg himself. Prof. Palmén's record, therefore, stands as very doubtful.

(42) *Larus affinis*, Reinh. No. 238 in Table.

Were the Gulls seen in Yugorsky Strait and on Waigats not much more likely to be of this species than *Larus fuscus*? I think so. (*Vide* Von Heuglin, 'Ibis,' 1872, p. 65.)

* I have received the letterpress and the map through the kindness of Mr. Collett.

(43) *Larus minutus*, Pall. No. 241 in Table.

In the Table I have entered this species on the authority of Lilljeborg and Meves. Herr Meves relates that though he had no opportunity of visiting the locality near the fort at Archangel, he saw two skins of specimens shot there by Herr Iversen. In 1872 Alston and myself had no opportunity of visiting this locality, except in passing, and we could not gain any satisfactory evidence of their presence there. My impression is, that evidence is wanting of their occurring and breeding every year. It seemed also not to be known to the natives.

(44) (*Sterna fluviatilis*, Naum.) No number.

Auct. Lilljeborg, who gives it as common at Archangel. I cannot find any other record; and as he includes *Sterna arctica*, Temm. (= *St. hirundo*, L. partim, *vide* Mr. H. Saunders on the Sterninæ, P. Z. S., June 1876, p. 650, = *St. macrura*, Naum.), as only frequenting Skuretzkaia in Kola, whereas it is abundant on the outer islands of the Dvina delta, I think some confusion must have arisen, and that the occurrence of *St. fluviatilis*, Naum., requires further confirmation.

SUMMARY OF DISTRIBUTION TABLE IN DISTRICTS (UP TO DATE).

(Spaces are left in the columns for future summaries.)

	N.W.				N.C.				N.E.			
	Total records.	Very doubtful.	Less doubtful.	Total authentic.	Total records.	Very doubtful.	Less doubtful.	Total authentic.	Total records.	Very doubtful.	Less doubtful.	Total authentic.
Up to date } 1877 }	122*	(1)		121	224	(12)	12	200	128	(1)	3	124

* As before mentioned, I have avoided for the present much criticism of the records in the N.W. district, owing to the incompleteness of our present data.

In the whole of the NORTHERN DIVISION of
 North Russia we have records of 249 species.
 Of these there are of extremely doubtful value
 in the fauna 12 ”
 And of less doubtful nature 7 ”

Leaving authentic records of 230 species.

A great deal still remains to be done, especially in the N.E. and N.W.* districts, and also in some parts of the N.C., before we can form an accurate idea of the longitudinal distribution. I have elsewhere more particularly indicated those portions of North Russia in which useful work might be done (Appendix to “Notes on the Birds of the Lower Petchora,” issued with separata). It is believed, however, that the tabular treatment of the subject above given will admit of future additions and corrections being made at any time, and that future generalizations will be made somewhat easier.

In my next section I hope to be able to treat of the fauna of the SOUTHERN DIVISION, and to compare the Northern and Southern together. Then, having treated of the whole of North Russia north of 60° N. lat., a comparison may be instituted between the faunas of all the countries of the Western Palaearctic Region north of the aforesaid parallel, and useful results may be arrived at regarding the distribution of species in Northern Europe.

I offer this *plan of work* to naturalists, and especially to workers in geographical distribution, in the hope that some-

* There appears to be good reason to believe that the northern portions of the Kola peninsula are not thickly populated by birds, and might not indeed repay a visit, if *only collecting* were intended. (A comparison, however, of even the limited fauna of the Kola tundras with that of the tundras further east and west could not fail to have considerable interest for the student of geographical distribution.) In a work entitled ‘En Sommer i Finmarken, Russisk Lappland og Nord Karelen,’ Christiania, 1871, p. 211, the author (Prof. J. A. Friis) describes the banks of the river Kola as almost destitute of bird-life, although they are covered with luxuriant vegetation in summer. On the banks of the Tana Elv, further to the westward, and about 300 miles from the fjord, there is a singular dearth of bird-life, as I am informed by a friend who for many years has fished that river; and the same remark applies to the Enare lake and the district around it. Prof. Newton informs me, however, that the contrary is the case as regards the lower reaches of the Tana Elv. The southern half, however, of the Kola peninsula, south of the limit of pine-growth [*vide* Dr. A. Petermann’s maps; Stieler’s Hand-Atlas, no. 51, Ost-Europa, Bl. 2. Nordost-Russland (Gotha, Justus Perthes, 1876); or map in Prof. Friis’s work above alluded to], will probably be found to possess a richer and more varied fauna. For further remarks on the work done and the work to be done, I refer my readers to our Appendix to our “Notes on the Birds of the Lower Petchora.”

thing may be found in it worthy of imitation, however much may be considered faulty or imperfect. What is desired by naturalists I have taken as my text in the first part of this paper—"a uniform method of registration;" and that is what I desire, however far short of perfection my own plan may be considered*.

In conclusion, I wish especially to thank Prof. Newton for his ever ready and obliging communications in this connexion, and I have also to acknowledge with thanks letters from the following gentlemen, in answer to inquiries made regarding the distribution of the birds of Northern Europe, viz. to Herr A. G. Nordvi of Vadsö, Dr. Meves of Stockholm, Prof. A. J. Friis and Herr R. Collett of Christiania, and to Prof. Palmén of Helsingfors. To the courtesy of the two latter gentlemen I am greatly indebted for much useful information bearing upon my subject, as well as for copies of several books and papers upon the birds of Finland and Norway. I need scarcely add that I shall be most grateful for any assistance these or other naturalists will afford me in my subject in the future.

[To be concluded with Part III.]

POSTSCRIPT.

Phylloscopus borealis, Blas. No. 115 in Table.

Dr. Meves informs me (*in lit.*) that this interesting species has been found last summer (1876) in Northern Onega, and also in the Kola peninsula, by the collectors employed by Lieut. Sandeberg.

ERRATUM IN PART I.

Page 285. Transpose the names *Plectrophanes lapponicus* (L.) and *Plectrophanes nivalis* (L.), Nos. 35 and 36. The records applied to the former in both Tables belong to the latter, and *vice versa*.

II.—Notes on *Carboniferous Polyzoa*.

By R. ETHERIDGE, jun., F.G.S.

[Plate II. A.]

A LARGE collection of Carboniferous Polyzoa has lately been made by Mr. James Bennie for the Geological Survey of Scotland, from Mid and East Lothian. From my notes on this collection I extract the following descriptions.

* For the guidance of those, if such there may be, who approve of this method, I may mention here that the minor details of work, such as collecting the records and tabulating them for use, will be found in a paper read by me before the Glasgow Natural-History Society, and which, I understand, will shortly appear in their Proceedings for Session 1876-77, entitled "On uniformity of Method in recording Natural-History Observations, especially as regards Distribution and Migration," &c.